BTEC Assignment Brief

Qualification	Pearson BTEC International Level 3 Subsidiary Diploma in Applied Science Pearson BTEC International Level 3 Foundation Diploma in Applied Science Pearson BTEC International Level 3 Diploma in Biomedical Science Pearson BTEC International Level 3 Extended Diploma in Biomedical Science
Unit number and title	**Unit 9: Biomedical Science**
Learning aim	**B**: Examine the use of histology and cytology in medicine
Assignment title	**Medical applications of histology and cytology**
Assessor	
Issue date	
Hand in deadline	

Vocational Scenario or Context	You are a laboratory technician in a histology laboratory in a local hospital. As a biomedical science technician working in the medical sector it is important to have appropriate practical/sampling skills and an understanding of the applications of histology and cytology. A histologist working in a hospital laboratory you will carry out the preparation of biological samples for microscopic examination, observe and compare abnormal cells, and know some basic principles of histopathology. It is also important for you to consider how laboratory results are managed and communicated to relevant people. Your supervisor has set up some Continuing Professional Development (CPD) for you to ensure that your knowledge and skills remain up to date.

Task 1	As part of your annual CPD in your role of laboratory technician in a histology laboratory you are required to prepare a report that **evaluates, analyses and explains** how techniques in cytology and histology are initially used in the detection and diagnosis of disease and may then be used to inform the subsequent treatment of a patient. The Histology department frequently need to respond to requests for rapid results from the examination of tissue samples taken during surgery or at out-patient clinics. **Explain** the dual role of screening for disease and for detecting early signs of disease, by describing different screening techniques and explaining their role in early detection of disease. **Explain** how the results of the analysis of tissue samples removed surgically for examination relate to the types of treatments

	that may be required. You should consider the following techniques: o screening (bowel cancer) o aspirates (cerebrospinal fluid, amniocentesis) o surgical removal of tissues for disease identification (cervical, breast, prostate tissue) o allergic reactions tested by skin tests o tissue typing for bone marrow transplantation o purposes of specimens taken in autopsies to establish causes of death. ● **Evaluate** how screening and the early detection of disease using cytological or histopathological examination of samples facilitates early intervention in patient treatment and how this consequently impacts on the patient's prognosis and quality of life. Include consideration of the impact and implications of false-positive and/or false negative test results. You must consider and discuss how early detection and treatment can impact on individual patients, their families and the Health Service in terms of the emotional, economic and financial costs. Include secondary data to show how the early detection of the presence of a communicable disease can be used to plan the prevention of an epidemic. Ensure in your report you have shown the need to communicate accurate sampling, reporting diagnostic results and accurate medical records for the appropriate people at the right time. ● **Explain** how informatics is used in a medical setting to record, store and report information in an accessible format whilst maintaining confidentiality. **Analyse** how Laboratory Information Management Systems are used to ensure that patient's results are promptly and accurately recorded and then stored securely in order to maintain confidentiality. Consider how processes such as automated microtomy and tissue staining can be monitored to ensure quality standards are met. Show how the accuracy of pathological assessment of tissue and cell samples is critical to the outcome for patients, through the implementation of quality control measures to ensure error-free automated sample preparation, interpretation and reporting. Consider how test results are made available to the key medical clinicians involved in patient treatment. How is the timely and accurate provision of these results important in interpretation, planning**,** prescribing and managing the patient's treatment?
Checklist of evidence required	A report that includes: ● An evaluation of how screening tests are used to make early diagnoses and how this impacts on patients, society and health services. ● An analysis and explanation of how test results are interpreted, stored and reported in order to plan appropriate treatment programmes. ● An explanation of the use of histology/cytology in disease screening programmes.

	● An explanation of the use of histology/cytology in the investigation of tissue samples.
Criteria covered by this task:	
Unit/Criteria reference	To achieve the criteria, you must show that you are able to:
B. D2	Evaluate the implications of screening and early disease diagnosis for the individual and for the health service and society.
B. M2	Analyse how the interpretation and informatics of diagnostic test results are used as a tool for planning appropriate treatment.
B. P4	Explain the use of analytical investigation in disease screening.
B. P5	Explain the use of analytical investigations of tissue samples.
B. P6	Explain the use of informatics and data handling in biomedical science.
Sources of information to support you with this Assignment	All sources of information suggested are UK based. Centres are free to amend these sources to those available in the Country of delivery where more appropriate. http://labtestsonline.org.uk/ https://www.ibms.org/go/biomedical-science/careers-jobs/careers-histology http://www.pathologists.org.uk/speciaities/histopathology_1 https://www.england.nhs.uk/wp-content/uploads/2014/02/pathol-dig-first.pdf